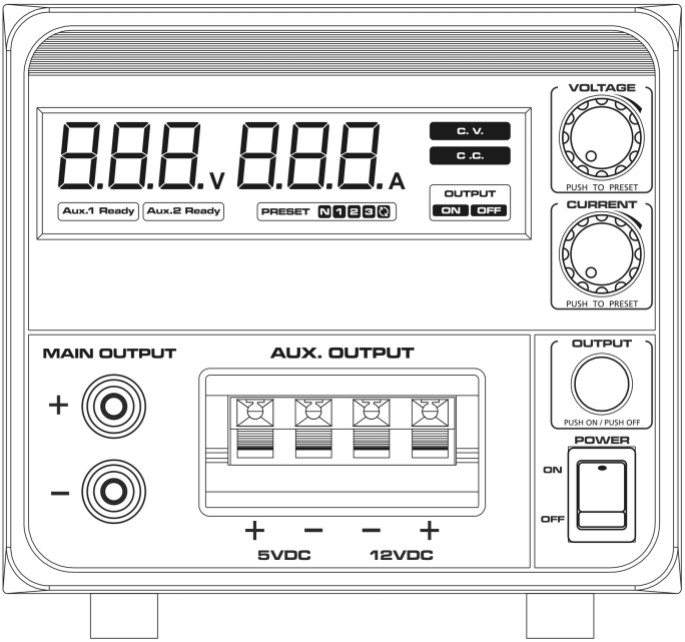
# NEP – SERIES

## User Manual

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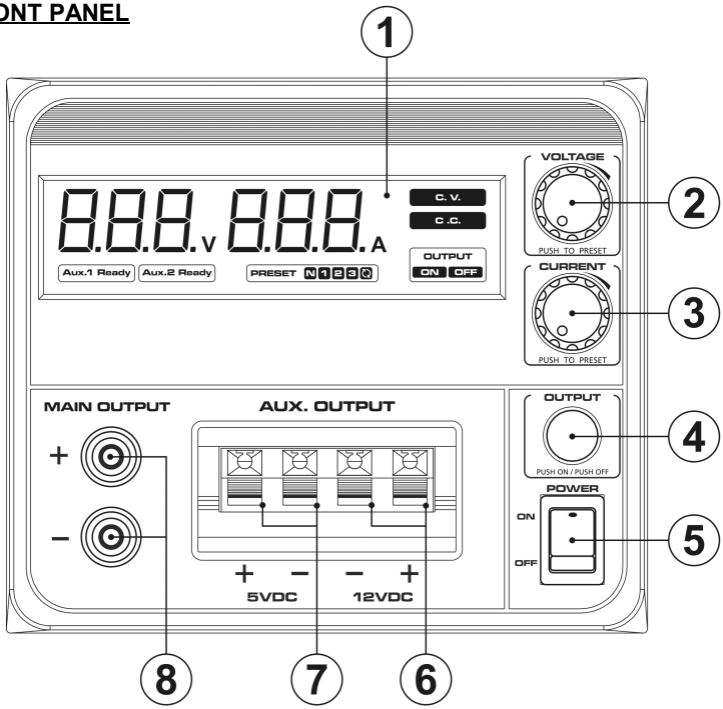
# I. Introduction

This unit is a Micro-Processor controlled DC linear Power Supply with a total 90W output power with adjustable constant current function.
There are 3 user defined presets of voltage and current recall, and 3 programmable timed presets for cyclical application. An adjustable main output and two Aux snap on outputs of 5V and 12V.

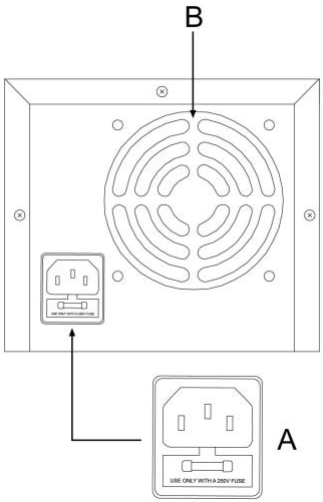
# II. Explanation of Panels

## A. FRONT PANEL




1. LCD display: Indicates output voltage & current, presets, CC, CV, status of main, auxiliary outputs, output On / OFF, running the Cycled Program and faults.
2. Output Voltage Control knob: Adjusts and sets the voltage value, preset values and modes setting.
3. Output Current Control knob: Adjusts and sets the current value, preset values and modes setting.
4. Output On-Off push button.
5. Power On-Off switch
6. 12V clip on output.
7. 5V clip on output.
8. Output "+" terminal (Red): Positive polarity output terminal.
   Output "-" terminal (Black): Negative polarity output terminal.

**B. Rear Panel**




(A) AC input socket with fuse inside.
(B) Cooling Fan Air Intake Grille

## III. Safety Precautions

1. Do not place anything on the top of unit.
2. Allow at least 50 mm free space on both side of unit for cooling.
3. Do not place the unit in high humid and dusty environment.
4. Do not use the unit for the equipment that requires higher current ratings than the unit is designed for, otherwise damage could occur to the unit.
5. Do not replace the fuse before ceasing the problems, use same fuse rating.
6. Never touch the power supply when your hand is wet.
7. Never remove the metal cover without unplugging of AC mains.
8. Never operate a damaged unit.
9. Indoor use only.

## IV. Connection and Operation

1. Check the input rating conforms with your local supply.
2. Turn OFF the unit and the equipment.
3. Connect the equipment to the unit. Positive polarity to Red (+) and negative polarity to Black (-).
4. Turn ON the unit first and then Turn ON the equipment.
5. When an operation is finished, turn OFF the equipment first and then turn OFF the unit.

# V. Instruction For User Preset And Cycle Operation

| PRESET N 1 2 3 ↻ | |
|---|---|
| **ICONS DESCRIPTION** | |
| **PRESET** | Preset functions to the values of voltage, current, time and running cycles. |
| N | Normal running |
| 1 | First group of voltage, current and time. |
| 2 | Second group of voltage, current and time. |
| 3 | Third group of voltage, current and time. |
| ↻ | Cycle running. |

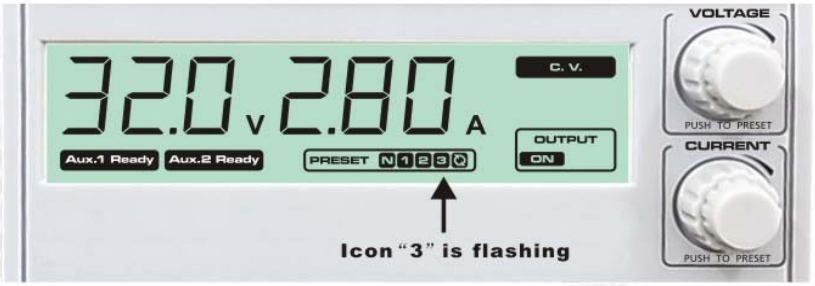
**Setting the 3 Presets**

The 3 Presets must be set in the order of Preset 1 → Preset 2 → Preset 3.
To initiate the setting mode for the Presets, first press Voltage Knob then quickly press the Current Knob.

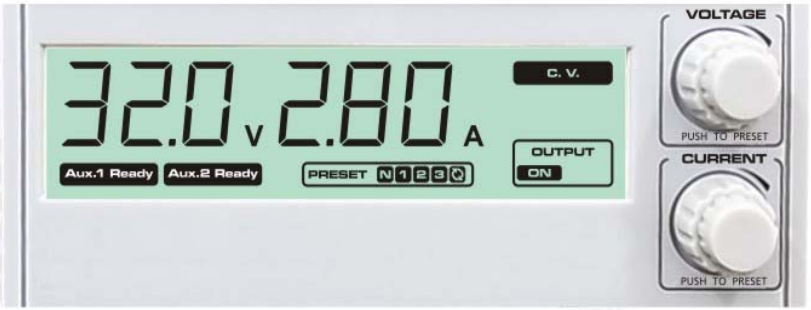
1. Press the Voltage Knob and then press the Current Knob. Icon "1" is flashing to show ready for setting.

2. Adjust Voltage Knob for voltage value and Current Knob for current value.
3. When Icon "1" is flashing still, press the Voltage Knob then the current Knobs to confirm Preset 1 new settings and Icon "2" will start flashing to indicate Preset 2 is ready for setting.

4. Adjust Voltage Knob and Current Knob accordingly and press Voltage then Current Knobs to confirm Preset 2 new settings and Icon" 3" will start flashing to indicate Preset 3 is ready for setting.




5. Adjust Voltage and Current as before and press Voltage and Current Knobs to confirm Preset 3 new settings.
6. All the new settings of the three Presets are now completed.
   And there is no flashing of anyone of the P1, P2 or P3.



**Recalling the Presets**

1. Before using this function ,make sure the main output has been switched off by the Push Button (4)

2. Give a quick press to Voltage Knob then the Current Knob to get Preset flashing P1. Check the displayed values of voltage and current accordingly.
3. Repeat the above to get to Preset P2, then P3.
4. Quick press of Voltage and Current Knobs at P3 will exit from the Preset Mode to normal operation mode N at which has no flashing Presets Icon.

NORMAL MODE **N**→P1→P2→P3→**N** NORMAL MODE →P1→P2→P3→**N** NORMAL MODE
→ = Quick press to Voltage Knob then Current Knob.

**Warning:** Avoid turning action on the knobs while pressing otherwise the set value will be changed.

**Setting the Timed Presets & running the Cycled Program**

| "88.8 V 8.88 A" Display U,A,t,P | |
|---|---|
| **LCD Display** | **Description** |
| U1 00.0 | First Timed Preset Voltage |
| A1 0.00 | First Timed Preset Current |
| t1 000 | First Timed Preset run time in seconds |
| U2 00.0 | Second Timed Preset Voltage |
| A2 0.00 | Second Timed Preset Current |
| t2 000 | Second Timed Preset run time in seconds |
| U3 00.0 | Third Timed Preset Voltage |
| A3 0.00 | Third Timed Preset Current |
| t3 000 | Third Timed Preset run time in seconds |
| P 000 | Number Of Cycle Running |

**Remarks :**

The three Timed Presets share the same Icon of the single V & I Presets. But they have run time settings and a cycle setting. The power supply can thus be programmed to operate from one Timed Preset which runs for a set time period and moves to the next lot of Timed Presets.

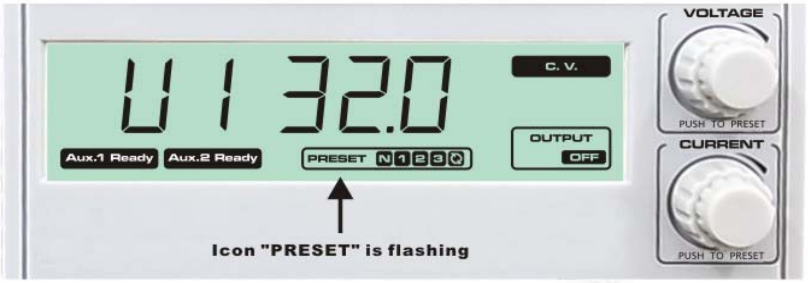
When the power supply is in cycle operation the cycle icon flashes with the time preset in operation.

**Setting the Timed Presets**

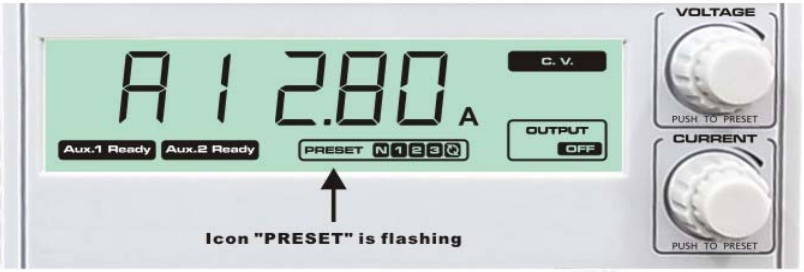
1. Push Button (4) to Output "OFF" position, check display to confirm.

2. Press and hold the voltage knob for about 5 seconds to enter into the setting mode with flashing "Preset Icon" as shown below.

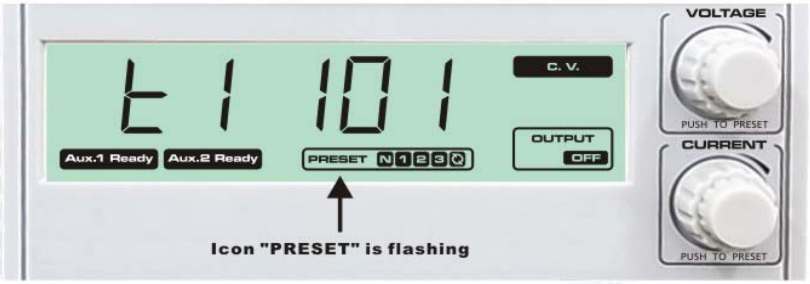
3. Use voltage knob to adjust voltage for U1, press voltage knob to confirm new setting.



4. Use current knob to adjust current for A1, press **current knob** to confirm new setting.

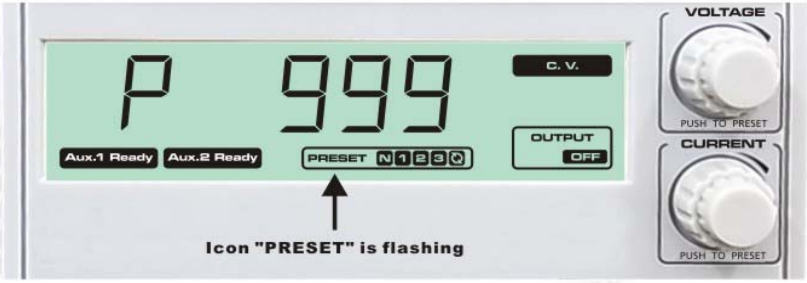



5. Use **voltage knob** to adjust time duration in seconds for t1, press **voltage knob** to confirm new settings.




6. Repeat above steps for P2 and P3.
7. To set the number of cycles.

After t3 of P3 has been set and confirmed, the **P icon** will then appears and ready for setting of number of cycles.
Adjust the **voltage knob** to set the number of cycles from 1 to 999***.




<u>To double check the Timed Program Cycle Settings.</u>

To Check the settings of Timed Presets before cycle run starts.
Just repeat procedure from 1 to 5 and take note of each setting.

<u>To run the Timed Program cycle</u>

8. Push Button (4) to Output “ON” position, check display to confirm.

9. Press the Voltage Knob to start the cycle runs.
   The power supply will return to Normal Mode once the set cycles have completed the operation.

**<u>Selective running of P1, P2 , P3 with Timed Cycle Program :</u>**

1. The cycle run will skip any Preset with timer set to zero.
   Example 1:-
   If you only want to run P1 and P2, then set the time (t3) of P3 set to 0.
   Example 2:-
   If want to run P3 only, then set the time (t1 and t2) of P1 and P2 to 0.
2. During a cycle run the preset in operation and the Cycle Icon are flashing together .
3. If all the preset timers ( t1,2,3,) are set to zero then only the Cycle Icon is flashing. This serves as a warning of wrong setting of 3 preset timers.

**Remarks :**

A) ***If the number of cycle is set at zero, then the unit will run infinite cycles.
B) To exit from the Timed Presets Cycle Program during operation or the setting with P1, P2, P3 and number of cycles, just press the Voltage Knob for 5 seconds.
C) If during any of the setting of the Timed Presets & Cycle Program, the setting operation stops for more than one minute, the unit will return to normal operation.
D) Previous setting time period values of P1, P2 and P3 are stored after the cycle operation exit cycle run.
E) The values of both the Presets and the Timed Presets are retained in the unit even after the power supply is switched off.
F) The cycle number will not be retained after the power supply is switched off or after the preset runs completed.

## VI. Setting the Output Enable / Disable at Power Up

The power supply has been factory preset with Output Power Off when unit is powered up. This default setting can be changed to Output Power On when unit is powered up.

| Description | LCD Display | Action |
|---|---|---|
| To change output "Power ON" when you switch on the power supply at next power up. | Original Default Setting<br>OUTPUT OFF<br>↓<br>OUTPUT ON | Press and hold "Button (4)"<br> <br>And then turn on the power switch "Power (5)"<br> |

## VII. Features

1. One main adjustable output with 3 user presets of V & I.
2. Three independent user presets.
3. Programming of timer and auto-cycling of preset in sequence.
4. Rotary encoder tuning of V & I.
5. Output On-Off switch with status indication.
6. Large LCD display for V & I, Presets, CC, CV, status of main and aux. outputs and Aux outputs and faults.
7. Constant current can be set without shorting.
8. Two Aux snap on outputs of 5V and 12V with status indication.

| LCD ICONS DISPLAY | DESCRIPTION |
|---|---|
| Aux.1 Ready Aux.2 Ready | Aux 1 (5Vdc / 500mA) and Aux 2 (12Vdc /500mA) are in good order. |
| Aux.2 Ready | Aux 1 voltage is out of range of 4.6 – 5.4Vdc or in abnormal state. Aux 2 is in good order. |
| Aux.1 Ready | Aux 2 voltage is out of range of 11.5Vdc – 12.5Vdc or in abnormal state. Aux 1 is in good order. |

## VIII. Protections

1. Over current to the output
2. Short circuit or over load
3. Over voltage to the output
4. Over temperature to the unit

# IX. Specifications

| Models | **NEP-6185** | **NEP-6303** |
|---|---|---|
| Output Voltage Coverage Range | 0.5 – 18V | 0.5 - 32V |
| Output Voltage Control | Rotary Encoder System with Fine & Coarse tuning | |
| Output Current Coverage Range | 0 – 5A | 0 – 2.8A |
| Output Current Control | Rotary Encoder System with Fine & Coarse tuning | |
| Voltage Regulation | | |
| Ripple & Noise (r.m.s.) Voltage | <6mV | |
| Load Regulation<br>(0 – 100% Load) | <15mV | |
| Line Regulation (±5%) | <15mV | |
| Setting Accuracy | ± (0.2% +0.15) V | |
| Voltage Resolution | 0.1V | |
| Current Regulation | | |
| Ripple & Noise (r.m.s.) Current | <10mA | |
| Load Regulation<br>(10 – 90% Rated Voltage) | <30mA | |
| Line Regulation (±5% Variation) | <30mA | |
| Setting Accuracy | ± (0.3% +0.02) V | |
| Current Resolution | 0.01A | |
| Input Voltage | | |
| Input Voltage | 230VAC / 50Hz~ (120VAC / 60Hz~ or on request ) | |
| No Load Input Current (230VAC) | <200mA | |
| Full Load Input Current<br>(230VAC) | <0.9A | |
| Auxiliary Output | | |
| Fixed Output 1 with 500mA | 5.0Vdc | |
| Continuous Current | 0.5A | |
| Fixed Output 2 with 500mA | 12.0Vdc | |
| Continuous Current | 0.5A | |
| Factory Preset (Sefault Setting) | | |
| Preset 1 | Votage = 5.0V | Votage = 5.0V |
| | Current = 5.0A | Current = 2.8A |
| Preset 2 | Votage = 10.0V | Votage = 10.0V |
| | Current = 5.0A | Current = 2.8A |
| Preset 3 | Votage = 15.0V | Votage = 15.0V |
| | Current = 5.0A | Current = 2.8A |

# IX. Specifications

| Models | **NEP – 6185** | **NEP - 6303** |
|---|---|---|
| Protection | | |
| Over Voltage Protection (Main Output) | Vout +1V when Vout ≤5V | Vout +1V when Vout ≤5V |
| | Vout +1.5V when 5.1V ≤Vout ≤10V with <0.2sec. | Vout +1.5V when 5.1V ≤Vout ≤10V with <0.2sec. |
| | 18~22% at tracking 10.1V <Vout ≤19V | 18~22% at tracking 10.1V <Vout ≤33V |
| Short Circuit or Over Load | Yes | |
| Over Temperature | 100°C | 100°C |
| Meter Accuracy | | |
| Voltage Meter Accuracy (V≤2V) | ±1% + 4 Digits | |
| Voltage Meter Accuracy (V>2V) | ±1% + 3 Digits | |
| Current Meter Accuracy (I≤1A) | ±1% + 4 Digits | |
| Voltage Meter Accuracy (I>1A) | ±1% + 3 Digits | |
| LCD Indications | Voltage and Current, C.C. And C.V., Aux.1 and 2 Status, Output ON/OFF, 3 User Defined V & I Presets, Running the Cycled Program, Fault Indication, OVP-Over Voltage, OCP-Over Current or Load, OTP-Over Temperature | |
| Presets Cycle Programming | Max Preset time: 999 seconds ; Max Preset Cycles 999 Times or infinite cycles “0” | |
| Output Terminals | Standard binding pole screw type or safety jack type | |
| Approvals | CE EMC: EN 55011, EN 61000 LVD: EN 61010 | |
| Fuse | 2A x 1 (Slow) | |
| Cooling System | Variable speed thermally control fan (0 to full speed) | |
| Dimensions (WxHxD) | 151 x 132 x 280 mm | |
| Weight | 5.4 Kgs | |

***All values are based on the Standard ambient Temperature 25°C and Pressure 0.1Mpa.**

*** SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE ***